National Climatic Data Center

DATA DOCUMENTATION

FOR

DATA SET 9714 (DSI-9714)

TORNADO Archive (Pearson Tornado Tape)

December 30, 2002

National Climatic Data Center
151 Patton Ave.
Asheville, NC 28801-5001 USA

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1. Abstract: Tornado Archive contains a chronological listing, by state, of tornadoes. The reports are provided by the National Weather Service and contain statistics on injuries and damage estimates. TORNADO ARCHIVE is a publication of the National Climatic Data Center. This Data has been compiled from the Storm Data publication.

Background:

The Tornado Archive has been compiled from the Climatic Data National Summary (CDNS) from 1950-1959 and from the Storm Data Publication since 1959. These data have been coded according to the Pearson Tornado Tape format. As of the beginning of 1996, the National weather service (NWS) has implemented a relational database procedure for the dissemination of severe weather information called StormDat. Each NWS office FTP's a monthly file to the NWS Office of Meteorology (OM) for inclusion into the " Storm Data" Paradox relational database. Once all of the NWS Forecast offices have sent the data to the OM, it is compressed and sent to the NCDC for quality control, publication and archival.

As one would expect, the number of tornado reports has increased yearly due to the advances in technology and an increase in population. The WSR-88D Doppler radar is instrumental in the detection of tornadoes which might not have been reported in earlier years. The increase in population in some area has resulted in a larger number of tornadoes being reported by Skywarn Spotters and/or the general public.

These data are archived by the National Climatic Data Center (NCDC) in an 82 column text format for easy extraction by computer programs. These data are available for download in this raw text format via the Internet at the SPC web page **www.spc.noaa.gov** and the NCDC web page at **www.ncdc.noaa.gov**.

2. Element Names and Definitions:

Record Position	Element Name	Definition and Remarks
1 - 4	Year	In 4 digit format Ex: 1998
5 - 7	Sequence#	Each tornado in numbered within the state it occurred by date and begin time
8 - 9	State FIPS #	The county FIPS number is a unique number assigned to the county by the National Institute for Standards and Technology. **See Appendix A**.
10 - 1l	Month	In 2 digit number format. (0 - 12) Ex. 12 = December
12 - 13	Day	Day of the month (0 - 31)
14 - 17	Time	In 24 hour format. Ex. 2359 = 11:59 PM
18 - 18	Time Zone	Indicates the time zone recorded for the tornado observation time. 1 - EST Eastern Standard Time

		2 - EDT Eastern Daylight Time 3 - CST Central Standard Time 4 - CDT Central Daylight Time 5 - MST Mountain Standard Time 6 - MDT Mountain Daylight Time 7 - PST Pacific Standard Time 8 - PDT Pacific Daylight Time 9 - GMT Greenwich Mean Time
19 - 19	Time Accuracy	Indicates the reliability of the reported tornado begin time. 1 + 15 minutes 2 + 30 minutes 3 + 45 minutes 4 + 60 minutes 5 + 75 minutes 6 + 90 minutes 7 + 105 minutes 8 + 120 minutes 9 > 120 minutes
20 - 20	Weather Event	Indicates the type of weather event 1 Tornado 2 Funnel Cloud 3 Waterspout 4 Waterspout moving ashore 5 Tornado moving over large body of water 6 Hail 3/4 inch or greater 7 Winds 50 knots or greater 8 Hail Aloft 9 Extreme Turbulence
21 - 21	Event Remarks	Indicates any special conditions present during event. 1 with large Hail 2 with Heavy Rain 3 with 1 & 2 4 No Rain or Hail M Missing or unknown
22 - 22	Number of States	Total number of states the tornado passed through.
23 - 23	Total Segments	Total number of segments of the tornado
24 - 24	Segments Number	The number of the segment out of the total number of segments for that particular tornado.
25 - 28	Beginning Latitude	In degrees and minutes. Example:3543 = 35'43" (North Latitude) M Missing or Unknown
29 - 33	Beginning	In degrees and minutes.

	Longitude	Example:10126= 101'26" (West Longitude.) M Missing or Unknown
34 - 37	Ending Latitude	In degrees and minutes See above M Missing or Unknown
38 - 42	Ending Longitude	In degrees and minutes See above M Missing or Unknown
43 - 46	Track Length	Length of tornado track in tenths of miles. Example: 195 = 19.5 miles M Missing or unknown
47 - 47	% on ground	Percent of the tornado segment path on the ground 0 100% 1 10% 2 20% 3 30% 4 40% 5 50% 6 60% 7 70% 8 80% 9 90% M Missing or Unknown
48 - 48	Type of Path	Indicates the direction of the movement of the tornado. 0 Straight 1 Sinusoidal 2 Left turn loop 3 30 degrees to the left 4 45 degrees to the left 5 60 degrees to the left 6 Right turn loop 7 30 degrees to the right 8 45 degrees to the right 9 60 degrees to the right M Missing or Unknown
49 - 49	Visual Type	Describes the visual characteristics of the tornado. 1 ropelike 2 cone shaped 3 thin column 4 moderate column 5 thick column 6 obscured by heavy rain 7 no visible sign M Missing or Unknown
50 - 50	Rotational Sense	Describes the type of tornadic rotation.

		1 Counter-clockwise 2 Clockwise M Missing or unknown
51 - 53	Path Width	The mean tornado width in 10's of feet. Example: 528 = 5280 feet M Missing or Unknown
54 - 56	Fatalities	The number of deaths recorded for the event
57 - 60	Injuries	The number of injuries recorded for the event.
61 - 61	Damage Class	The estimated amount of damage incurred by the event. 0 $ 0.00 or No damage reported 1 Less than $50.00 2 $ 50 - $ 500 3 $ 500 - $ 5,000 4 $ 5,000 - $ 50,000 5 $ 50,000 - $ 500,000 6 $ 500,000 - $ 5,000,000 7 $ 5,000,000 - $ 50,000,000 8 $ 50,000,000 - $ 500,000,000 9 $500,000,000 - $5,000,000,000 M Missing or Unknown
62 - 64	1st County FIPS Number	The county FIPS number is a unique number assigned to the county by the National Institute for Standards And Technology (NIST)
65 - 67	2nd County FIPS Number	See description above. Blank Not Applicable
68 - 70	3rd County FIPS Number	See description above. Blank Not Applicable
71 - 73	4th County FIPS Number	See description above. Blank Not Applicable
74 - 76	5th County FIPS Number	See description above. Blank Not Applicable
77 - 77	F Scale	Fujita Scale - Describes the strength of the tornado based on the amount and type of damage caused by the tornado. The F-scale of damage will vary in the destruction area; therefore, the highest value of the F-scale is recorded for each event. F-scale may not do a good job of representing "actual" tornado intensity in areas of sparse or poor construction (i.e., few structures to damage or flimsy structures). 0 Light Damage (40-72 mph)

	1	Moderate Damage (73-112 mph)
	2	Significant Damage (113-157 mph)
	3	Severe Damage (158-206 mph)
	4	Devastating Damage (207-260 mph)
	5	Incredible Damage (261-318 mph)

78 - 79 PL Scale — These are estimates of the storm's path length (PL). The PL scale excludes sections without surface disturbances.

PL	LENGTH (MILES)	WIDTH
0	less than 1.0	less than 18 yds.
1	1.0 - 3.1	18 - 55 yds.
2	3.2 - 9.9	56 - 175 yds.
3	10.0 - 31.9	176 – 527 yds.
4	32 - 99.9	528 - 1759 yds.
5	over 100	over 1760 yds
M	Missing or Unknown	

80 - 81 Pw Scale — These are estimates of the storm's and mean path width (PW). The PW scale is averaged over the entire path length.

PL	LENGTH (MILES)	WIDTH
0	less than 1.0	less than 18 yds.
1	1.0 - 3.1	18 - 55 yds.
2	3.2 - 9.9	56 - 175 yds.
3	10.0 - 31.9	176 – 527 yds.
4	32 - 99.9	528 - 1759 yds.
5	over 100	over 1760 yds
M	Missing or Unknown	

82 - 82 NSSFC Code — Identifies the source of the data for the tornado report.

1	From Newspaper Clippings
2	From NWS Survey
3	From Storm Data
4	Other
M	Missing or Unknown

3. Start Date: 19500101

4. Stop Date: Ongoing.

5. Coverage: North America and its territories

a. Southernmost Latitude: 15 N. Latitude
b. Northernmost Latitude: 70 N. Latitude
c. Westernmost Longitude: 144 E. Longitude
d. Easternmost Longitude: 60 W. Longitude

6. How to Order Data:

Ask NCDC's Climate Services about the cost of obtaining this data set.
Phone: 828-271-4800

FAX: 828-271-4876
E-mail: **NCDC.Orders@noaa.gov**

7. Archiving Data Center:

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

8. Technical Contact:

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, NC 28801-5001
Phone: (828) 271-4800.

9. Known Uncorrected Problems: None.

10. Quality Statement: This data set has NOT been thoroughly edited for errors. It is published as received from the National Weather Service's Weather Forecast Offices.

11. Essential Companion Datasets: None.

12. References: No information provided with original documentation.

Appendix A

Table 1
FIPS State Codes for the States and the District of Columbia

Alabama	01 AL	Missouri	29 MO
Alaska	02 AK	Montana	30 MT
Arizona	04 AZ	Nebraska	31 NE
Arkansas	05 AR	Nevada	32 NV
California	06 CA	New Hampshire	33 NH
Colorado	08 CO	New Jersey	34 NJ
Connecticut	09 CT	New Mexico	35 NM
Delaware	10 DE	New York	36 NY
DC	11 DC	North Carolina	37 NC
Florida	12 FL	North Dakota	38 ND
Georgia	13 GA	Ohio	39 OH
Oklahoma	40 OK	Oregon	41 OR
Hawaii	15 HI	Pennsylvania	42 PA
Idaho	16 ID	Rhode Island	44 RI
Illinois	17 IL	South Carolina	45 SC
Indiana	18 IN	South Dakota	46 SD
Iowa	19 IA	Tennessee	47 TN
Kansas	20 KS	Texas	48 TX
Kentucky	21 KY	Utah	49 UT
Louisiana	22 LA	Vermont	50 VT
Maine	23 ME	Virginia	51 VA
Maryland	24 MD	Washington	53 WA
Massachusetts	25 MA	West Virginia	54 WV
Michigan	26 MI	Wisconsin	55 WI
Minnesota	27 MN	Wyoming	56 WY
Mississippi	28 MS		

United States Coastal Waters and Great Lakes: (added by Stuart Hinson, NCDC for Storm Data purposes only)

81	LC	LAKE ST CLAIR
82	PS	AMERICAN SAMOA WATERS
83	PM	PACIFIC ISLAND WATERS
84	PH	HAWAII WATERS
85	GM	GULF OF MEXICO
86	PZ	PACIFIC OCEAN
87	AM	CARIBBEAN SEA AND TROPICAL ATLANTIC
88	AN	ATLANTIC OCEAN
89	PK	ALASKA WATERS
90	LH	LAKE HURON
91	LM	LAKE MICHIGAN
92	LS	LAKE SUPERIOR
93	SL	ST LAWRENCE RIVER
94	LO	LAKE ONTARIO

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FIPS State Codes for the Outlying Areas of the United States, the Freely Associated States, and Trust Territory

American Samoa	60	AS 1
Federated States of Micronesia	64	FM 3
Guam	66	GU 1
Marshall Islands	68	MH 3
Northern Mariana Islands	69	MP 1
Palau	70	PW 4
Puerto Rico	72	PR 1
U.S. Minor Outlying Islands	74	UM 2
Virgin Islands of the U.S.	78	VI 1